J. NICHOLSON, DEC'D.

K. B. NICHOLSON, EXECUTRIX.

TRACK SPRAYING APPARATUS.

APPLICATION FILED MAR. 10, 1920.

1,419,686. Patented June 13, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

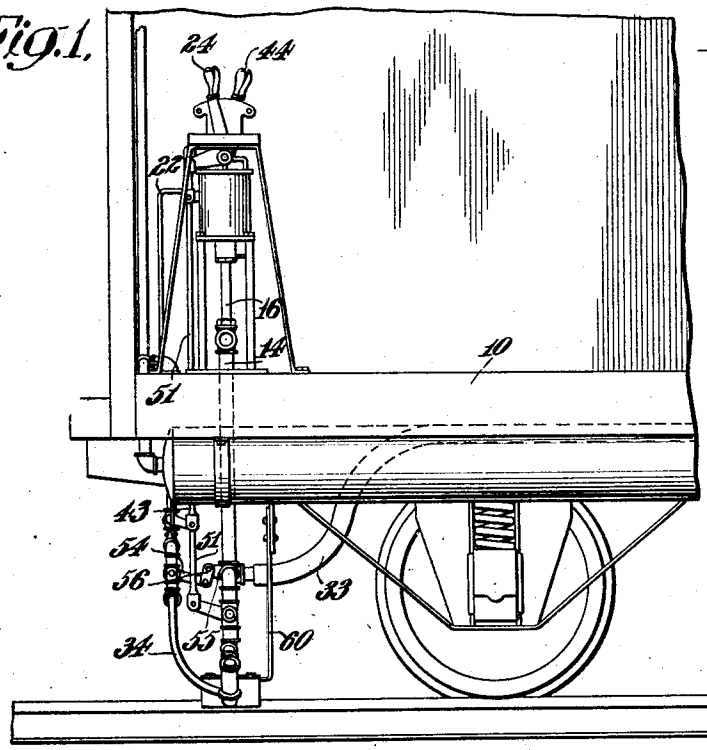


Fig. 6.

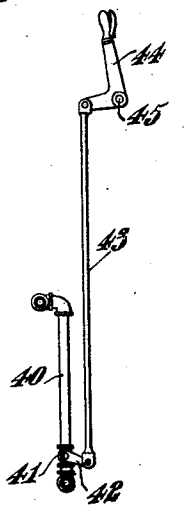


Fig. 2.

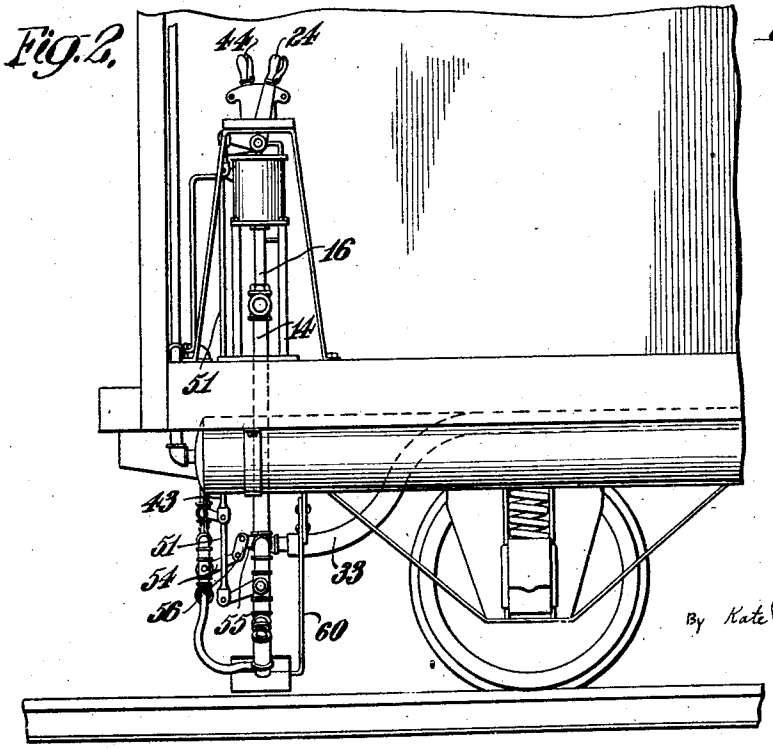
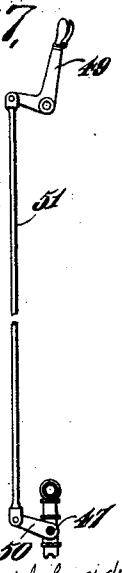


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 3.

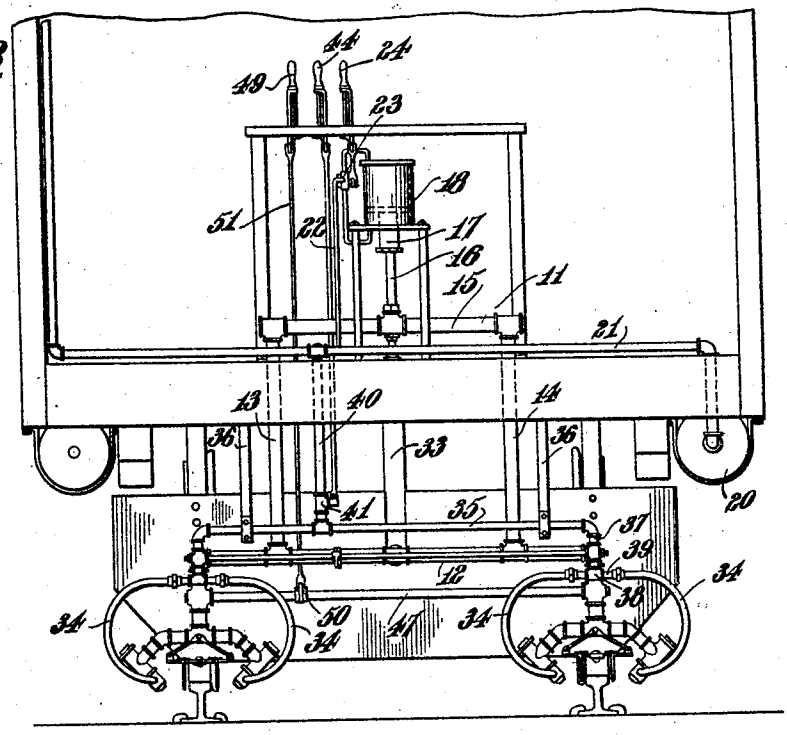


Fig. 4.

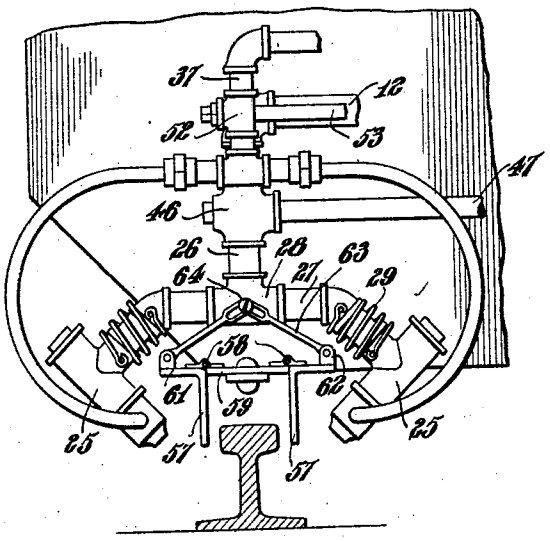
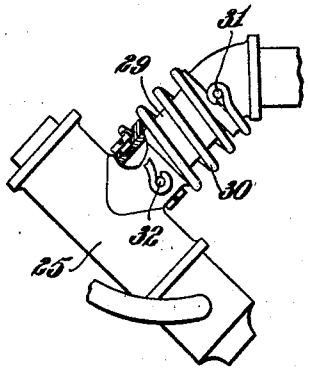


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN NICHOLSON, DECEASED, LATE OF HOUSTON, TEXAS, BY KATE B. NICHOLSON, EXECUTRIX, OF HOUSTON, TEXAS, ASSIGNOR TO THE TEXAS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF TEXAS.

TRACK-SPRAYING APPARATUS.

1,419,686. Specification of Letters Patent. **Patented June 13, 1922.**

Application filed March 10, 1920. Serial No. 364,842.

To all whom it may concern:

Be it known that JOHN NICHOLSON, formerly a citizen of the United States, and a resident of Houston, county of Harris, and State of Texas, did prior to his decease invent certain new and useful Improvements in Track-Spraying Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to apparatus for treating railways and has special reference to apparatus of the general character shown and described in Patent No. 1,169,990 granted February 1, 1916 to Andrew J. Neafie.

One object of this invention is to improve the control and simplify the regulation and adjustment of track spraying apparatus of the aforesaid character.

When track spraying mechanisms as hitherto constructed approached a crossing or other irregularity requiring temporary elevation or adjustment of the parts of the track spraying device, several hand levers were necessarily adjusted in order to shut-off the supply of the liquid with which the track was being sprayed, to shut-off the air supply used to force the liquid through the nozzle, and to elevate the track spraying parts, etc.

According to this invention independent means is provided for adjusting the flow of the oil or other spraying liquid and the air so that the force of the spray discharged from the spraying nozzles is susceptible of close adjustment. However, the necessity of throwing these means out of adjustment is avoided and the operation of adjusting the sprayer in going over a frog or crossing is simplified by providing a single means, responsive to a hand lever or the like, for quickly and easily accomplishing not only the elevation of the track spraying nozzles but also the shutting off of the supply of oil and air to the nozzles. The same means is adapted to lower the spraying apparatus and reopen the oil and air supply pipes.

Other advantages and objects of this invention will be set forth hereinafter and the appended claims set forth the features of novelty.

Referring to the drawings:

Figure 1 is a side elevation of the operation of a car equipped with a track spraying device which constitutes an embodiment of this invention.

The same parts are shown in Figure 2 with the track spraying mechanism elevated into the position occupied when not in use.

Figure 3 is a front elevation of the track spraying mechanism.

Figure 4 is a detail view showing a part of the mechanism drawn to a larger scale.

Figure 5 is a partially sectional view showing the mounting for one of the nozzles and drawn to a still larger scale.

Figure 6 shows one of the air controlled valves and the regulating mechanism for adjusting the position of the valves.

Figure 7 is a view corresponding to Figure 6 of the oil control valve and mechanism.

10 designates a car which is intended to be representative of any suitable railway vehicle which may be equipped with the rail spraying apparatus and control mechanism of this invention. The spraying mechanism comprises a frame 11 which may, for example, be formed of piping and is composed of a transverse tubular support 12 at the bottom, a pair of vertical side supports 13 and 14, a tubular crossbar 15 at the top and a connecting rod 16 attached to the crossbar and joined at its upper end to the piston 17 of an actuating cylinder 18.

20 designates a source of compressed air which may be maintained by any suitable air pump which forms a part of the train equipment and is not shown in the drawing. Leading from the tank 20 is a pipe 21 having a small branch 22 which supplies air to either end of the cylinder 18 in response to a control valve 23 actuated by a regulating handle 24.

The arrangement of parts is such that upon moving the handle lever 24 in the one direction or the other the piston within the cylinder is actuated to elevate or lower the frame 11 and the attached parts which will now be described.

Referring particularly to Figures 3, 4 and 5, 25 designates the track spraying nozzles which are arranged in pairs each pair being in position to spray one of the rails of the track. The arrangement of nozzles for the two rails is identical and it will be necessary to describe only the one set in detail.

Extending downwardly from each end of

the transverse supporting pipe 12 and connected thereto, is a comparatively short pipe section 26 which supports and is connected to a yoke 27 having a central T 28, short lateral sections and downwardly extending inclined sections 29.

One of the nozzles 25 is pivotally mounted at the lower end of each of the inclined sections 29 and is yieldingly held in position by a helical spring 30 which surrounds the inclined section 29 and is affixed at its upper end to a pin 31 on the pipe bracket 27 and at its lower end to a pin 32 on the nozzle 25. The parts are arranged in such manner that the pipe 12 constitutes a conduit through which oil is supplied to the nozzle as well as a support for the nozzles, the oil being supplied to the pipe 12 through a flexible hose or pipe connection 33 as clearly shown in Figures 1 and 2.

The air is supplied to nozzles 25, through flexible hose 34 connected at their inner ends to an air pipe 35 which extends transversely of the car and is supported by straps 36. It has downwardly extending projections 37 terminating in T connections 38 from which lateral branches 39 extend. the hose connections 34 being coupled to the branches 39.

The air supply pipe is designated 40 and is connected to the supply pipe 21 at its upper end and to the pipe 35 at its lower end. The valve 41 controls the introduction of air to the pipe 35 and the nozzles. The valve 41 is provided with an actuating lever 42 which is coupled by a link or rod 43 to a bell crank and handle lever 44 pivotally mounted at 45. The pipe branches 26 in the oil supply and supporting lines are provided with valves 46 which are adapted to be concurrently actuated by the rotation of a transverse rod 47 which is accomplished by the bell crank and control lever 49 which is coupled to an arm 50 on the rod 47 by a link or rod 51.

In addition to the air control valve 41 there are a pair of air control valves 52 in the air pipe branches 37. These valves are interconnected by a rod 53 having an actuating arm 54 which is joined to a projection 55 on the frame 11 by means of a link 56, the arrangement of parts being such that the upward and downward movement of the frame causes the closing and opening of the valves 52. The up and down movement of the frame also effects the closing and opening of the oil control valve 46.

A pair of guard plates 57 are hingedly connected at 58 to a substantially horizontal plate 59 spaced slightly above the tread of the rail. Plate 59 is supported by a strap or bracket 60, as shown in Figures 1 and 2.

Each of the plates 57 has a lateral projection 61 with a lug 62 at the top connected by links 63 to a pin 64 on the T connection 28 of the nozzle support. Each of the links 63 has an elongated slot where it engages the pin 64 to permit the free upward swinging movement of each guard plate on its hinge.

Furthermore when the nozzles are elevated the pull on the links serves to swing the guard plates upwardly so that they are elevated substantially into the plane of the support plate 59 on which they are mounted.

The operation of the apparatus will now be described:

Assuming that the parts occupy the positions in which they are shown in Figures 1, 3 and 4 it will be observed that the spray nozzles 25 are directed so as to discharge oil in finely divided form against the side and web surfaces of the rail, while at the same time guard plates 57 prevent the oil from being supplied to the tread surface of the rail where oil is, of course, not only unnecessary but very undesirable. The mixture of oil and air may be adjusted by varying the positions of the levers 44 and 49 which govern the openings of the valves 41 and 46.

If one of the nozzles accidentally meets an obstruction it will merely be swung about its pivotal mounting on the pipe section 29 in opposition to the spring 30 and would return to its normal position as soon as the obstruction is passed.

The parts are arranged, however, in such manner as to enable the nozzles, guards, etc., to be elevated to clear the track entirely whenever it is desired to pass a frog, crossing, or the like. This is accomplished by merely shifting the position of the lever 24 to actuate the valve 23 and admit air to the lower end of the cylinder 18. When this is done the frame 11 is elevated and lifts the pipe 12 together with the projections 26 and the nozzles 25.

When these parts move upwardly into the position shown in Figure 2 the valves 46 are automatically shut off because the valve rod 51 remains in a fixed position while the pipes in which the valves 45 are located are raised, the change in the relation of the parts being clearly illustrated in Figures 1 and 2. At the same time the air controlled valves 52 are adjusted since the lever arms 54 are connected, as already explained, to the lugs 55 on the movable frame.

In other words, the arrangement of parts is such that when the single lever 24 is suitably adjusted the frame 11 is elevated carrying the nozzles upward and automatically shutting off both the air and oil from the nozzles. After the crossing or the like is passed the lever 24 is again adjusted to admit air to the top of the cylinder 18, thus forcing the frame 11 downward and returning the parts to their original positions and turning on the oil and air to the nozzles.

This arrangement has a number of marked advantages some of which may be enumerated as follows:

A single control lever cares for the necessary adjustment of parts in passing a crossover or the like. The elevation and return of the nozzles is effected without the necessity of readjusting the relative oil and air openings which are independently controlled by the levers 44 and 49.

The guard plates 57 are swung from the position shown in Figure 4 to a substantially horizontal position by the elevation of the frame 11 since they are connected by the links 63 to the T 28 which forms a part of the frame.

Various other advantages will be apparent to any one skilled in the art to which this invention pertains.

Apparatus of preferred form and construction has been illustrated and described for the purpose of showing a way in which this invention may be used, but the inventive thought upon which this application is based, is broader than this illustrative embodiment thereof, and therefore no limitations are intended other than those imposed by the appended claims.

Claims:

1. Apparatus comprising a car adapted to be propelled over a railway track, a spray nozzle mounted on said car, liquid connections and air connections to said nozzle, means for controlling the liquid and air supply to said connections and means for raising and lowering the nozzle and for automatically shutting off the liquid and air connections when the nozzle is elevated.

2. Apparatus comprising a car adapted to be propelled over a railway track, a spray nozzle, adjustable supporting means on the car for raising and lowering the spray nozzle, a source of liquid connected to said nozzle, a source of compressed air connected to said nozzle, means for regulating the supply of liquid to said nozzle, means for regulating the supply of compressed air to said nozzle, additional means for autonatically shutting off the supply of compressed air when the nozzle is raised, said means for regulating the supply of liquid being adapted to automatically shut off said supply when the nozzle is raised without disturbing its adjustment relative to the compressed air regulating means.

3. Apparatus comprising a car adapted to be propelled over a railway track, spraying mechanism arranged to discharge liquid on the sides of the rails, means for supplying liquid to the spraying mechanism, means for raising and lowering the spraying mechanism and automatic means dependent on the raising and lowering of the spraying mechanism for controlling the supply of liquid thereto.

4. Apparatus comprising a car adapted to be propelled over a railway track, a pair of spray nozzles on said car arranged to discharge a liquid on the sides of the rails, means for concurrently raising and lowering all of the nozzles, supply pipes connected to the nozzles, valves in the supply pipes and means automatically dependent on the raising and lowering of the nozzles for closing and opening the valves in the supply pipes.

5. Apparatus comprising a car adapted to be propelled over a railway track, a pair of spray nozzles on said car arranged to discharge a coating liquid on the sides of the rails, means for concurrently raising and lowering all of the nozzles, supply pipes connected to the nozzles, valves in the supply pipes, means automatically dependent on the raising and lowering of the nozzles for closing and opening the valves in the supply pipes and means for adjusting the amount of fluid supplied to the nozzles.

6. Apparatus comprising a car adapted to be propelled over a railway track, a vertically adjustable supporting frame on said car, two pairs of nozzles mounted on said frame and arranged to discharge liquid on the respective sides of each rail, means for supplying spraying fluid to said nozzles without interfering with the raising and lowering of the frame, means for governing the amount of spraying fluid supplied to the nozzles and means automatically dependent on the raising of the frame for cutting off the supply of spraying fluid to the nozzles.

7. Apparatus comprising a car adapted to be propelled over a railway track, a hollow vertically adjustable supporting frame on said car, two pairs of nozzles mounted on said frame and arranged to discharge liquid on the respective sides of each rail, a relatively stationary air supply line on said car with a branch for each pair of nozzles, a flexible connection from one of said branches to each nozzle, a liquid supply line on the car, a flexible connection from the liquid supply line to the movable frame, and a control valve in each of the branches of the air supply line adapted to be closed and opened by the up and down movement of the adjustable frame.

8. Apparatus comprising a car adapted to be propelled over a railway track, a hollow vertically adjustable supporting frame on said car, two pairs of nozzles mounted on said frame and arranged to discharge coated liquid on the respective sides of each rail, a relatively stationary air supply line on said car with a branch for each pair of nozzles, a flexible connection from one of said branches to each nozzle, a liquid supply line on the car, a flexible connection from the liquid supply line to the movable frame, a control valve in the air supply line, an

actuating lever for the valves and a link connection between the lever and the movable frame.

9. Apparatus comprising a car adapted to be propelled over a railway track, a hollow vertically adjustable supporting frame on said car, two pairs of nozzles mounted on said frame and arranged to discharge liquid on the respective sides of each rail, a relatively stationary air supply line on said car with a branch for each pair of nozzles, a flexible connection from one of said branches to each nozzle, a liquid supply line on the car, a flexible connection from the liquid supply line to the movable frame, control valves in the movable frame for governing the amount of liquid supplied to the nozzles, and an actuating lever and connections for governing said valves whereby the valves are opened and closed either in response to the adjustment of said lever or in response to a movement of the frame.

10. Apparatus comprising a car adapted to be propelled over a railway track, a spray nozzle vertically movable on said car, a control valve connected to the nozzle and movable therewith, a control lever mounted on the car for governing said valve, and a connection between the lever and the valve arranged in such manner that the valve is opened and closed either in response to the actuating lever on the car or by the elevation of the nozzle.

11. Apparatus comprising a car adapted to be propelled over a railway track, a spray nozzle movably mounted on said car, a control valve connected to the nozzle and movable therewith, a control lever mounted on the car for governing said valve, and a connection between the lever and the valve arranged in such manner that the valve is closed either in response to the actuating lever on the car or in response to the movement of the nozzle.

12. Apparatus comprising a car adapted to be propelled over a railway track, a pair of nozzles for each rail, a hollow frame adjustably mounted on said car and connected to support and supply liquid to said nozzles, a fluid pressure cylinder for raising and lowering said frame, flexible means for supplying liquid to the frame, valves in the frame for controlling the supply of liquid to the nozzles, a connecting rod between the valves and a control handle on the car joined to the connecting rod for actuating the valves, the connections being so arranged that the valves are controlled either by the lever on the car or by the up and down movement of the frame.

13. Apparatus comprising a car adapted to be propelled over a railway track, a pair of nozzles for each rail, a hollow frame adjustably mounted on said car and connected to support and supply liquid to said nozzle, a fluid pressure cylinder for raising and lowering said frame, flexible means for supplying liquid to the frame, valves in the frame for supplying the control of liquid to the nozzles, actuating levers for the valves, a connecting rod between the levers, a control handle on the car joined to the connecting rod for actuating the valves, the connections being so arranged that the valves are controlled either by the lever on the car or by the up and down movement of the frame, a fixed air supply line on the car with a branch for each pair of nozzles, a control valve in said air supply line connected to be automatically responsive to the movement of said frame, a second control valve in said air supply line and a control lever on the car for actuating the second valve and flexible connections between the air supply branches and the nozzles.

In testimony whereof I have hereunto signed this application in the presence of two witnesses, this 2d day of March, 1920.

MRS. KATE B. NICHOLSON,
Executrix of John Nicholson, deceased.

Witnesses:
U. S. NICHOLSON,
J. A. BROWNELL.